CLAIMS:

The claims are not amended. The following clean claim set is provided for reference. Applicant asks that the Examiner indicate any errors in this claim set that are found, so that a correct claim set may be presented for appeal.

1-11. (Cancel)

12. (Original) A method for forming a deposit on a deposition substrate, comprising the steps of

providing a deposition gun that burns a mixture of a fuel and an oxidizer to form a deposition gas flow, mixes a powder into the deposition gas flow to form a deposition mixture flow, and projects the deposition mixture flow therefrom, wherein the deposition gun is provided with a flowing coolant;

measuring a flow rate of the fuel to the deposition gun, a flow rate of the oxidizer to the deposition gun, a flow rate of the powder to the deposition gun, and a cooling capacity of the coolant flow; and

set-point controlling the flow rate of the fuel, the flow rate of the oxidizer, the flow rate of the powder, and the cooling capacity of the coolant flow, all responsive to the step of measuring.

13. (Original) The method of claim 12, wherein the step of measuring comprises a step of

measuring a coolant temperature of the coolant flow.

14. (Original) The method of claim 12, wherein the step of measuring comprises a step of

measuring a coolant flow rate of the coolant flow.

15. (Previously presented) The method of claim 12, wherein the step of providing the deposition gun includes the step of

providing the deposition gun comprising

a combustion chamber wherein a mixture of the fuel and the oxidizer is burned to generate the deposition gas flow under pressure,

a mixer wherein the pressurized deposition gas flow is mixed with a powder flow to form the deposition mixture flow,

a deposition flow director that receives the deposition mixture flow from the mixer and directs the deposition mixture flow toward the deposition substrate, and

a cooling structure operable with the flowing coolant passing therethrough and in cooling communication with the mixer and with the deposition flow director.

16. (Previously presented) The method of claim 15, wherein the step of measuring the flow rate includes the step of providing an instrumentation array providing

a fuel measurement of the flow rate of the fuel to the combustion chamber,

an oxidizer measurement of the flow rate of the oxidizer to the combustion chamber,

a powder measurement of the flow rate of the powder to the mixer, and

a coolant measurement of the cooling capacity of the coolant.

17. (Previously presented) The method of claim 12, wherein the step of set point controlling includes the step of providing a deposition controller including

a controllable fuel source of the fuel communicating with the combustion chamber, wherein the controllable fuel source is automatically controlled responsive to the fuel measurement,

a controllable oxidizer source of the oxidizer communicating with the combustion chamber, wherein the controllable oxidizer source is automatically controlled responsive to the oxidizer measurement,

a controllable powder source of the powder flow communicating with the mixer, wherein the controllable powder source is automatically controlled responsive to the powder measurement, and

a controllable coolant source of a flow of the coolant that provides an inlet flow of coolant to the cooling structure, wherein the controllable coolant source is automatically controlled responsive to the coolant measurement.

18. (Previously presented) The method of claim 12, wherein the fuel is hydrogen gas and the oxidizer is oxygen gas, and wherein the step of set point controlling includes the step of

controlling a flow ratio of the hydrogen gas to the oxygen gas to be from about 2.2 to about 2.6.

19. (Previously presented) A method for forming a deposit on a deposition substrate, comprising the steps of

providing a high-velocity oxyfuel deposition gun that burns a mixture of a fuel and an oxidizer in a combustion chamber to form a deposition gas flow, mixes a powder into the deposition gas flow after the deposition gas flow leaves the combustion chamber and enters a mixer to form a deposition mixture flow, and projects the deposition mixture flow therefrom, wherein the deposition gun is provided with a flowing water coolant;

measuring a flow rate of the fuel to the deposition gun, a flow rate of the oxidizer to the deposition gun, a flow rate of the powder to the deposition gun, and a cooling capacity of the flowing coolant; and

set-point controlling the flow rate of the fuel, the flow rate of the oxidizer, the flow rate of the powder, and the cooling capacity of the coolant flow, all responsive to the step of measuring.

20. (Previously presented) The method of claim 19, wherein the step of measuring comprises a step of

measuring a coolant temperature of the coolant flow.

21. (Previously presented) The method of claim 19, wherein the step of measuring comprises a step of

measuring a coolant flow rate of the coolant flow.

22. (Previously presented) The method of claim 19, wherein the step of providing the deposition gun includes the step of

providing the deposition gun comprising

the combustion chamber wherein a mixture of the fuel and the oxidizer is burned to generate a pressurized deposition gas flow,

the mixer wherein the pressurized deposition gas flow is mixed with a powder flow to form a deposition mixture flow,

a deposition flow director that receives the deposition mixture flow from the mixer and directs the deposition mixture flow toward the deposition substrate, and

a cooling structure operable with a flowing coolant passing therethrough and in cooling communication with the mixer and with the deposition flow director.

23. (Previously presented) The method of claim 22, wherein the step of measuring the flow rate includes the step of providing an instrumentation array providing

a fuel measurement of the flow rate of the fuel to the combustion chamber,

an oxidizer measurement of the flow rate of the oxidizer to the combustion chamber,

a powder measurement of the flow rate of the powder feed to the mixer, and

a coolant measurement of the cooling capacity of the coolant.

24. (Previously presented) The method of claim 19, wherein the step of set point controlling includes the step of providing a deposition controller including

a controllable fuel source of the fuel communicating with the combustion chamber, wherein the controllable fuel source is automatically controlled responsive to the fuel measurement,

a controllable oxidizer source of the oxidizer communicating with the combustion chamber, wherein the controllable oxidizer source is automatically controlled responsive to the oxidizer measurement,

a controllable powder source of the powder flow communicating with the mixer, wherein the controllable powder source is automatically controlled responsive to the powder measurement, and

a controllable coolant source of a flow of the coolant that provides an inlet flow of coolant to the cooling structure, wherein the controllable coolant source is automatically controlled responsive to the coolant measurement.

25. (Previously presented) The method of claim 19, wherein the fuel is hydrogen gas and the oxidizer is oxygen gas, and wherein the step of set point controlling includes the step of

controlling a flow ratio of the hydrogen gas to the oxygen gas to be from about 2.2 to about 2.6.